Data Structure Recitation

HW2 & Makefile Revisited & Linked List

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Homework 2

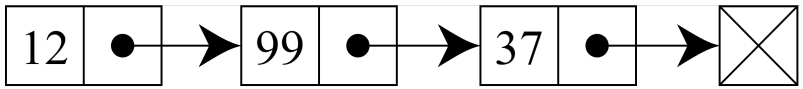
- Three Modes.
- Error check.
- Make sure output exactly the same. Using *diff*
- instanceof

Makefile

- Arguments
- Make targets
- ifdef
- Documentation

Definition

In computer science, a linked list is a linear collection of data elements, called nodes, each pointing to the next node by means of a pointer. It is a data structure consisting of a group of nodes which together represent a sequence.[1]



[1] https://en.wikipedia.org/wiki/Linked_list

Implementation

```
1 public class ListNode {
2     int val;
3     ListNode next;
4     ListNode(int x) { val = x; }
5 }
```

Plus One

Given a non-negative number represented as a singly linked list of digits, plus one to the number.
The digits are stored such that the most significant digit is at the end of the list.

$$1124 : 4 \rightarrow 2 \rightarrow 1 \rightarrow 1 \rightarrow \textit{null}$$

$$109 : 9 \rightarrow 0 \rightarrow 1 \rightarrow \textit{null}$$

Plus one:

$$1125 : 5 \rightarrow 2 \rightarrow 1 \rightarrow 1 \rightarrow \textit{null}$$

$$110 : 0 \rightarrow 1 \rightarrow 1 \rightarrow \textit{null}$$

Rotate List

Given a list, rotate the list to the right by k places, where k is non-negative.
For example:
Given $1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5 \rightarrow \mathit{null}$ and $k = 2$,
return $4 \rightarrow 5 \rightarrow 1 \rightarrow 2 \rightarrow 3 \rightarrow \mathit{null}$.